CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.12/GNR/WMM/Gradation/2016-17

04.05.2016

GRADATION FOR WMM

MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Mr. G.N. Ramesh,**
No.01, 3rd Main, Gandhi Grama, 7th Cross, Maruthi Extn., Opp Malleshwaram Railway Station, Bangalore - 560 021.

Name of Work : Providing pothole filling at Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.

Reference : EE/DD/WO/82/2015-16 Dated: 24.03.2016

Date of Testing : 04.05.2016

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): 8010

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	135	135	1.7	98.3	95-100
22.4	2585	2720	34.0	66.0	60-80
11.2	1185	3905	48.8	51.2	40-60
4.75	1090	4995	62.4	37.6	25-40
2.36	995	5990	74.8	25.2	15-30
0.600	835	6825	85.2	14.8	8-22
0.075	795	7620	95.1	4.9	0-8

Note:

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2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

AE-12

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ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಬಾಪೂಜಿ ನಗರ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ. ರಸ್ತೆ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

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BSCIC
ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/GNR/WMM/Gradation/2016-17 04.05.2016

GRADATION FOR WMM

MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Mr. G.N. Ramesh,**
No.01, 3rd Main, Gandhi Grama, 7th Cross, Maruthi Extn., Opp Malleshwaram Railway Station, Bangalore - 560 021.

Name of Work : Providing pothole filling at Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.

Reference : EE/DD/WO/82/2015-16 Dated: 24.03.2016

Date of Testing : 04.05.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 8235

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	215	215	2.6	97.4	95-100
22.4	2510	2725	33.1	66.9	60-80
11.2	1250	3975	48.3	51.7	40-60
4.75	1190	5165	62.7	37.3	25-40
2.36	1025	6190	75.2	24.8	15-30
0.600	985	7175	87.1	12.9	8-22
0.075	810	7985	97.0	3.0	0-8

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Civil-Tech Consultants & Engineers Bangalore

AG12

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ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಬಾಗಲಕುಂಟೆ ಮಂಡಲ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
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Job No.: CTCE/BBMP/W.No.12/GNR/BC/AIV/2015-16 16.05.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Mr. G.N. Ramesh,** No.01, 3rd Main, Gandhi Grama, 7th Cross, Maruthi Extn., Opp Malleshwaram Railway Station, Bangalore - 560 021.
Name of the Work	Providing pothole filling at Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/82/2015-16 Dated: 24.03.2016
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	16.05.2016

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	392	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	79	80	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	310	312	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	20.31	20.41	20.36

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

Note:

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AE-12

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಬಾಣಸವಾಡಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಬಿ.ಬಿ.ಎಂ.ಪಿ. ಕಛೇರಿ, ಬೆಂಗಳೂರು

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Job No.: CTCE/BBMP/W.No.12/GNR/BC/Sp_Wa/2015-16

18.05.2016

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Mr. G.N. Ramesh,** No.01, 3rd Main, Gandhi Grama, 7th Cross, Maruthi Extn., Opp Malleshwaram Railway Station, Bangalore - 560 021.
Name of the Work	Providing pothole filling at Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/82/2015-16 Dated: 24.03.2016
Type of Mix	Bituminous Concrete
Date of Testing	18.05.2016

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	1995	1996	1997	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1242	
4	Weight of saturated surface dry aggregate in air	W_3 g	2016	2017	2018	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	777	779	776	
6	Weight of oven dried aggregate	W_4 g	1995	2005	2006	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.568	2.574	2.585	2.575
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.639	2.614	2.626	2.626
9	Water Absorption	$((W_3-W_4)*100)/W_4$	1.05%	0.60%	0.60%	0.75%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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Job No: CTCE/BBMP/W.No.12/GNR/BC/Bitumen/2015-16 18.05.2016

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IS 2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. G.N. Ramesh,** No.01, 3rd Main, Gandhi Grama, 7th Cross, Maruthi Extn., Opp Malleshwaram Railway Station, Bangalore - 560 021.
NAME OF THE WORK	Providing pothole filling at Ward No.12 Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	EE/DD/WO/82/2015-16 Dated: 24.03.2016
SAMPLE I/D	Pot hole filling to roads in Ward No.12.
DATE OF TESTING	18.05.2016

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	45.39	9.58	9.58	90.42	79-100
9.5	32.12	6.78	16.35	83.65	70-88
4.75	71.32	15.05	31.40	68.60	53-71
2.36	66.35	14.00	45.40	54.60	42-58
1.18	49.35	10.41	55.81	44.19	34-48
0.6	54.36	11.47	67.28	32.72	26-38
0.3	46.31	9.77	77.05	22.95	18-28
0.15	41.22	8.70	85.74	14.26	12-20
0.075	42.36	8.94	94.68	5.32	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	35.21	7.44	7.44	92.56	79-100
9.5	47.31	9.99	17.43	82.57	70-88
4.75	65.35	13.80	31.23	68.77	53-71
2.36	71.22	15.04	46.27	53.73	42-58
1.18	76.36	16.13	62.40	37.60	34-48
0.6	52.32	11.05	73.45	26.55	26-38
0.3	31.26	6.60	80.05	19.95	18-28
0.15	25.65	5.42	85.47	14.53	12-20
0.075	35.26	7.45	92.91	7.09	4-10

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